National Science Foundation

FY2022 Budget Request to Congress

Climate Science and Sustainability Research

Climate change is one of the most pressing issues facing our world today. To develop the urgently needed solutions to the social, economic, and environmental impacts of our changing climate, we must study all the physical, natural, and human systems that contribute to and interact with Earth's climate system and create new, sustainable climate change solutions.

Since its creation in 1950, U.S. National Science Foundation investments in basic research have impacted nearly every aspect of America's clean energy future—from fundamental physics, chemistry, and materials science to data and computation including artificial intelligence, to large-scale systems engineering and cyber-infrastructure.

NSF's clean energy investments support innovative interdisciplinary basic and translational research and education that may broadly contribute to future sustainability, such as the conversion, storage, and distribution of diverse power and fuel sources (including smart grids); the science and engineering of energy materials, energy use, and energy efficiency; and the ways that people think about and use energy.

The FY 2022 Budget Request to Congress signals a strong commitment to advancing climate science and sustainability research, directing $1.20 billion toward climate and clean energy-related research. NSF will fund a broad portfolio of research related to climate science and clean energy, including research on atmospheric composition, water and carbon cycles, modeling climate systems, renewable energy technologies, materials sciences, and social, behavioral, and economic research on human responses to climate change.

Total Funding for USGCRP [1]
(Dollars in Millions)

	FY 2020 Actual	FY 2021 Estimate	FY 2022 Request
BIO	$90.00	$145.00	$212.15
GEO	$294.17	$329.23	$481.70
MPS	-	$10.00	$14.63
SBE	$19.61	$17.18	$25.14
OPP	$15.40	$19.40	$28.38
Total, NSF	**$419.18**	**$520.81**	**$762.00**

[1] Funding displayed may have overlap with other topics and programs.

Clean Energy Technology Funding [1]
(Dollars in Millions)

	FY 2020 Actual	FY 2021 Estimate	FY 2022 Request
BIO	$18.00	$45.00	$59.28
CISE	$18.50	$23.50	$31.12
ENG	$113.54	$123.03	$178.57
MPS	$92.62	$90.00	$118.56
TIP [2]	$48.47	$52.47	$52.47
Total, NSF	**$291.13**	**$334.00**	**$440.00**

[1] Funding displayed may have overlap with other topics and programs.
[2] FY 2020 and FY 2021 funding for TIP is shown for comparability across fiscal years.

NSF is positioned to continue this important work in supporting climate science and sustainability research:

U.S. Global Change Research Program (USGCRP) ($762.0 million)

- In FY 2022, NSF will continue to engage with other USGCRP agencies on priorities from intra-seasonal to centennial predictability, predictions, and projections; water cycle research; impacts of climate change on the nation's critical ecosystems, including coastal, freshwater, agricultural and forests systems; understanding the impacts of global change on the Arctic region and effects on global climate; and fundamental research on actionable science.
- NSF will further seek greater integration of social-science research, methodologies, and insights into understanding and supporting responses to global change, improving computing capacity, and maintaining needed observational capabilities over time.

Clean Energy Technology (CET) ($440.0 million)

- In FY 2022, NSF will focus on investing in fundamental clean-energy research, research infrastructure enabling sustainable energy generation and distribution and allowing for the creation of more energy-efficient energy systems, the clean energy workforce, and the translation of fundamental discoveries in clean energy into technologies and systems.
- NSF's clean-energy investments in high-risk, high-reward ideas from researchers across the science and engineering spectrum create broad new understanding and innovations that may increase energy efficiency, enhance sustainability, mitigate climate change, or lead to other societal benefits. NSF's investments in integrated clean energy research and education span longstanding programs as well as focused new solicitations and will continue to advance the fundamental science and engineering underlying clean energy technologies and infrastructure.
- NSF also will support multidisciplinary research in areas such as affordable green housing and sustainable systems for clean water, clean transit, and other infrastructure. Added NSF investments will help build a diverse future clean-energy workforce and advance the translation and deployment of innovative technologies.